

Evaluation of a *Cryptosporidium* Internal Standard for Determining Recovery with Environmental Protection Agency Method 1623

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Keywords: *Cryptosporidium*, Method 1623, internal standard, recovery, oocysts

The current benchmark method for detecting *Cryptosporidium* oocysts in water is the U.S. Environmental Protection Agency (U.S. EPA) Method 1623. Studies evaluating this method report that recoveries are highly variable and dependent upon laboratory, water sample, and analyst. Therefore, appropriate quality assurance/quality controls are vital for interpreting results. A key control is the matrix spike that is used to determine the percent recovery for a given water sample. To determine the percent recovery using the matrix spike procedure, paired water samples are taken, one sample is processed and analyzed, and the second sample is spiked with a known number of live *Cryptosporidium* oocysts, processed, and analyzed. This is very time consuming and expensive.

To improve the current method, scientists at the U.S. EPA, USGS, and UNC investigated the possibility of using an internal control as the matrix spike. A commercial product, ColorSeed, contains a known number of killed and tagged oocysts, which allows for the differentiation of spiked and naturally occurring oocysts in only one water sample. This study evaluated the recoveries of ColorSeed and live oocysts in 20 stream samples from all over the United States in matrix spike samples. The results indicate that recoveries obtained with ColorSeed oocysts were not significantly different from live oocysts. Therefore, the use of ColorSeed as an internal standard allows for the analysis of only one sample to determine recovery rather than the two samples required for live oocysts.

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